

old name, and both the imago and larva figured in Moore's LEPIDOPTERA OF CEYLON, Vol. III.

I do not think that the control measures suggested would be altogether successful as the newly hatched larvae bore into the leaf tissue and eventually find their way into the bulb, they do not feed on the surface of the leaf until after the 4th instar. Incidentally, the very high larval mortality in the first instar was probably due to unnatural conditions in the laboratory.

There are two other serious pests on Amaryllidaceae in Calcutta, *Polytela gloriosae* F. and *Calogramma festiva* Don, both of which feed on the surface of the leaf from the time of hatching, and which would respond more readily to the control measures suggested.

MOMBASA,

November 13, 1957.

D. G. SEVASTOPULO, F.R.E.S.

22. 'AN EPISODE FROM THE LIFE-HISTORY OF THE MOTH *SUANA CONCOLOR* WLK.'

With reference to the note under the above heading (1957, *JBNHS* 54: 784), I have records of the following food-plants:

Careya arborea (Myrtaceae).

Litsaea polyantha (Lauraceae).

Shorea robusta (Dipterocarpaceae).

I have not bred the species myself but, like so many of the Lasiocampidae, it appears to be a fairly general feeder.

With regard to the efficiency of the insect as a 'flying machine', I think it extremely doubtful that any of the larger Lasiocampid females indulge in really sustained flight until a fair proportion of their eggs have been laid.

MOMBASA,

November 11, 1957.

D. G. SEVASTOPULO, F.R.E.S.

23. A NOTE ON THE DIAGNOSTIC FEATURES OF LARVAE OF *ANOPHELES VARUNA* IYENG.

(With three text figures)

Puri (1931) originally described the larvae of *Anopheles varuna* basing his observations on specimens collected from south India. Roy (1938) noted certain differences in the larvae of the same species from Bengal and pointed out that 'The antero-internal clypeal hairs of the larva . . . show a constant fraying. The thoracic palmate hairs have the ends drawn out and in this respect also these larvae differ from those of *varuna* which resemble *minimus* in having their ends

truncate.' On the basis of these differential characters Roy held that the *varuna* of Bengal represented a new variety.

While a constant fraying of 'antero-internal' or inner clypeal hairs in *varuna* larvae, as noticed by Roy, was at variance with what Puri (1941) had described as primarily simple with some fraying in a few, the second character about the 'drawn out' thoracic palmate hairs in *varuna* from Bengal was in fact a reassertion of what Puri had also observed (p. 155). Roy somehow missed this point in Puri's description. In this character therefore the two larvae from the South and Bengal do not show any difference.

According to Venkat Rao and Ramakrishna (1940) the *varuna* larvae from Waltair and Gopalapatnam (Madras coast) also have inner clypeal hairs branched in 98 per cent of the specimens observed, while the outer and the posterior clypeal hairs were invariably simple. In the larvae from Bhadrak (Orissa), on the other hand, not only the inner clypeal hairs were branched as in Waltair specimens, but the other two sets of clypeal hairs, 56 per cent of the outer and 0.7 per cent of the posterior, were also branched.

I have recently examined a large number of larvae of *varuna* from Bengal (collected from different places), and the observations made have been given in Table 1. These observations show that

TABLE 1.
Morphological characters of *varuna* larvae from Bengal.

		Actual number showing the character	Percentage
Head Pattern ..	Blotching 'Y' shaped.	17	23.0
	Blotching 'U' shaped.	16	21.6
	No blotching.	41	55.4
Inner clypeal hairs ..	Frayed.	56	75.6
	Not frayed.	18	24.4
Outer clypeal hairs ..	Frayed.	11	15.0
	Not frayed.	63	85.0
Posterior clypeal hairs ..	Frayed.	4	5.4
	Not frayed.	70	94.6
Inner sutural hairs ..	4-7 branched.	73	99.0
	2-3 branched.	1	1.0
Outer sutural hairs ..	4-7 branched.	71	96.0
	2-3 branched.	3	4.0
Thoracic palmate hairs ..	14-22 leaflets.	72	97.0
	11-13 leaflets.	2	3.0

the anterior clypeal hairs were branched in about 75 per cent of the larvae examined. The percentage of larvae showing frayed inner clypeal hairs was not as high as in the specimens from Waltair (Venkat Rao and Ramakrishna, loc. cit.) or as observed by Roy (loc. cit.). Such fraying of inner clypeal hairs has often been observed as a variation from normal in a number of species. The mere presence of branching in the clypeal hairs further does not warrant splitting of the species into varietal forms, especially as the adults emerging from these larvae have all the characters of typical *A. varuna*. Opposing the idea of creating a new variety on the basis of this variation, and in order to avoid complications, Venkat Rao and Ramakrishna (loc. cit.) suggested certain amendments to the original description to include this branched condition of the inner clypeal hairs. The amendments suggested by these authors have not proved very informative. In view of the above position, therefore, I have suggested the following alterations in the revised synoptic table given below for distinguishing the larvae of the *funestus* group in Bengal:

Revised Key.

- | | |
|--|--------------------|
| 1. Anterior clypeal hairs with barb-like branches : Posterior clypeal hairs frayed from base (Fig. 1) | <i>aconitus</i> |
| Anterior clypeal hairs may or may not show fine branches : Posterior clypeal hairs simple, branching if present (5%) is an exception | (2) |
| 2. Presence of a pair of minute hairs, one on each side in the anterior tergal plate of certain abdominal segments (Fig. 2) | <i>varuna</i> |
| The pair of minute hairs arises outside the tergal plate ; these when relatively better developed | <i>fluviatilis</i> |
| When these hairs are poorly represented (Fig. 3) | <i>minimus</i> |

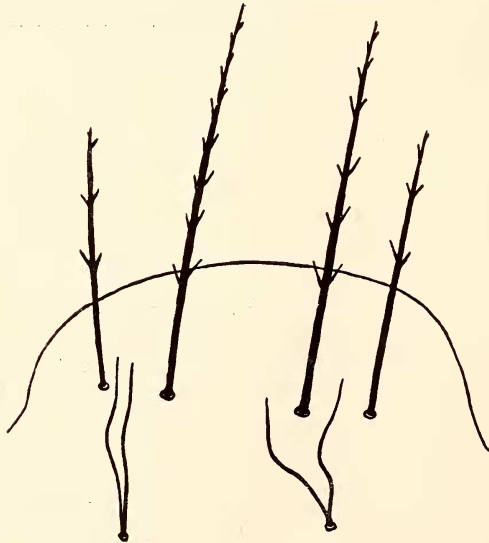
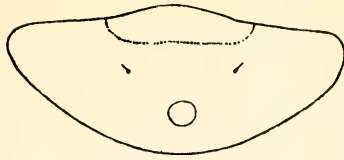
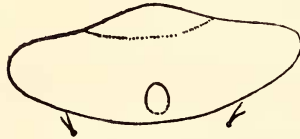


Fig. 1. $\times ca.$ 290

Fig. 2. $\times 100$ Fig. 3. $\times 100$

SCHOOL OF TROPICAL MEDICINE,
CALCUTTA,
December 20, 1957.

P. SEN

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24. FLOWERING OF *STROBILANTHES*

I am very interested to find that the flowering of the hillside grass *Strobilanthes kunthianus*, which blooms and dies once in twelve years, has coincided this year with the flowering of *Strobilanthes* species in the evergreen sholas, blooming and dying once in seven years, on the Billigirirangan Hills, S. India. Such combined flowering must be rare. The results were beautiful.

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February 6, 1958.

R. C. MORRIS

[A few years ago the Bombay plant, *Strobilanthes callosus* or *Carvia callosa*, produced one of the general flowerings which also coincided with several other species of *Strobilanthes* in an area from Mt. Abu in Rajputana to the Nilgiris and Palnis in S. India. The period between any two general flowering seasons for many of the species of *Strobilanthes* varies between 7 and 12 years, but our information is rather scanty on the subject. See Santapau in *Bot. Mem. Univ.*